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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,870

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Kun'ichi Miyazawa

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EXAMINER

MCCRACKEN, DANIEL

ART UNIT

PAPER NUMBER

1736

NOTIFICATION DATE

DELIVERY MODE

06/23/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/593,870	<b>Applicant(s)</b> MIYAZAWA ET AL.	
	<b>Examiner</b> DANIEL C. MCCracken	<b>Art Unit</b> 1736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 11, 14, 16 and 18-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-21 is/are allowed.
- 6) ☒ Claim(s) 11, 14, 16, 22-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Citation to the Specification will be in the following format: (S. # : ¶/L) where # denotes the page number and ¶/L denotes the paragraph number or line number. Citation to patent literature will be in the form (Inventor # : LL) where # is the column number and LL is the line number. Citation to the pre-grant publication literature will be in the following format (Inventor # : ¶) where # denotes the page number and ¶ denotes the paragraph number.

#### ***Status of Application***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/10/2011 has been entered.

Claims 11, 14, 16 and 18-28 are pending. Claims 11, 14, 16, 18-21, and 25 are currently amended. Claims 1-10, 12-13, 15 and 17 are acknowledged as cancelled.

#### ***Response to Arguments***

##### **Claim Rejections – 35 U.S.C. §103**

I. With respect to the rejection of Claims 10-12, 14, 16-24 under 35 U.S.C. 103(a) as being unpatentable over US 2002/0192143 to Miyazawa, et al. in view of Fagan, et al., *Metal Complexes of Buckminsterfullerene (C<sub>60</sub>)*, Acc. Chem. Res. 1992; 25: 134-142 (hereinafter “Fagan at \_\_\_”), the traversal is on the grounds that “Claims 11 and 18 recite a needle crystal

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‘having a hollow structural portion,’ and claim 18 further recites that ‘the amount of the C<sub>60</sub> platinum derivative to be added is in the range of 1-10 mass % for the C<sub>60</sub> fullerene molecules.’ (Remarks of 3/10/2011 at 6). As to Claim 11, these remarks are not persuasive. Miyazawa teaches hollow portions. (Miyazawa 5: [0132] *et seq.*). As to Claim 18, on reconsideration, while there is a suggestion to add dopants or metals in Miyazawa, neither Miyazawa nor Fagan reasonably suggest the ratio of the platinum derivative fullerene to the other fullerenes as now claimed. The rejection of Claims 18-21 is WITHDRAWN.

With respect to Claim 22, the traversal is on the ground that an “amorphous structure” is not taught. (Remarks of 3/10/2011 at 7). This has been considered, but is not persuasive. According to the specification, amorphous structures are created by the liquid-liquid interfacial method, citing to Applicants own work. (S. 2: 3 *et seq.*). No difference is seen between Miyazawa and that which gives rise to what Applicants characterize as “amorphous.” The rejection of Claims 22-24 is MAINTAINED.

**II.** With respect to the rejection of Claims 25-28 under 35 U.S.C. 103(a) as being unpatentable over US 2002/0192143 to Miyazawa, et al. and Fagan, et al., *Metal Complexes of Buckminsterfullerene (C<sub>60</sub>)*, Acc. Chem. Res. 1992; 25: 134-142 as applied to claims 17-18 above, and further in view of US 7,291,318 to Sakurabayashi, et al., the traversal is on the grounds that Sakurabayashi irradiates the electron beam “in the heated state.” (Remarks of 3/10/2011 at 7). Sakurabayashi defines the “heated state” as “at least higher than room temperature (typically, 25-30 C)” (Sakurabayashi 5: 30-31). Room temperature is a relative term, and no difference is seen between the “room temperature” claimed (as it was not disclosed) and the room temperature of Sakurabayashi. The rejection is MAINTAINED.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**I. Claims 25-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.**

The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 25 now requires the irradiation be carried out at room temperature. The remarks state “the basis for such amendment may not be literally recited in the present specification [but] in Example 3 of the present specification, the needle crystal was irradiated with an electron beam at room temperature.” (Remarks of 3/10/2011 at 5). This is a conclusory statement without any factual support. While Applicants can rely on inherent disclosures, evidence must be supplied to show that the features are indeed inherent. MPEP 2163. This is a new matter rejection. All claims not specifically addressed impart the issues of the claims from which they depend.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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**I. Claims 11, 14, 16 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0192143 to Miyazawa, et al. in view of Fagan, et al., *Metal Complexes of Buckminsterfullerene (C<sub>60</sub>)*, Acc. Chem. Res. 1992; 25: 134-142 (hereinafter “Fagan at \_\_”).**

Claims 11, 14 and 16 and 22-24 are claims directed to the resulting product of the reactions addressed in previous office actions in connection with Claim 18, with the proviso that the product claims are not limited by the metal content like Claim 18 is. The rationale set forth for rejecting previously pending Claims 17-18 is still applicable here and expressly incorporated herein by reference from the Final Office Action. Note that the morphologies in Claims 11, 23, 14 and 24 are taught. (Miyazawa 5: [0132] *et seq.*) (“hollow portions”) and *e.g.* (Miyazawa “Fig 28”) (showing a closed form). Note that with respect to Claim 22, polycrystalline or amorphous structures are taught. (Miyazawa 1: [0022] - 2: [0023]). *See also* discussion of liquid-liquid interface method in the response to arguments section *supra* as it pertains to amorphous structures. As to all platinum limitations in all claims, see the Fagan reference and discussion in previous office actions related to platinum.

**II. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0192143 to Miyazawa, et al. and Fagan, et al., *Metal Complexes of Buckminsterfullerene (C<sub>60</sub>)*, Acc. Chem. Res. 1992; 25: 134-142 as applied to claims 17-18 above, and further in view of US 7,291,318 to Sakurabayashi, et al.**

Claim 25 repeats many limitations addressed in connection with Claim 18. The discussion accompanying “Rejection I” in the Final Office Action is incorporated herein by reference and relied on for steps (1)-(3) of Claim 25, *mutatis mutandis*.

Claim 25 further requires "(4) a step in which a vacuum thermal treatment at 600°C or higher or an irradiation of an electron beam with high energy of 100 keV or higher at room

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temperature is carried out for the carbon fine wire.” Miyazawa does not appear to recite the annealing or irradiation required by the claim. However, Sakurabayashi teaches that e-beam irradiation at the energies claimed. (Sakurabayashi 6: 8 *et seq.*). One would be motivated to employ such a treatment for any number of reasons, for example making nanotubes from “hybrid structures” (which appear to encompass the fullerene wires of Miyazawa). *See e.g.* (Miyazawa 4: 7 *et seq.*). No difference is seen between the newly claimed room temperature and those disclosed in Sakurabayashi. (Sakurabayashi 5: 31). As to Claims 26-28, see discussion of Claims 17-21 accompanying “Rejection I” in prior office actions, *mutatis mutandis*.

### ***Allowable Subject Matter***

#### **I. Claims 18-21 are allowed.**

The prior art, while teaching a method that suggests additives, did not reasonably teach a method which suggested the additives in the ratios now claimed.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL C. MCCracken whose telephone number is (571)272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel C. McCracken/

Daniel C. McCracken

Primary Examiner, Art Unit 1736

DCM